OpenEye®

Outdoor Speed Dome Camera

User Manual

Camera

CM-512

Accessories

CA-510G
CA-510W
CA-510C
CA-510P25
CA-510P50
CA-510PML
CA-510PMS
CA-510PA25
CA-510PA50

www.openeye.net

Outdoor High-Speed Dome Camera (CM-512)

User Manual

Manual Edition 31362AC –AUGUST 2013

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OPENEYE

Liberty Lake, WA ● U.S.A.

Important Safeguards

1. **Read Instructions**
   Read all of the safety and operating instructions before using the product.
2. **Retain Instructions**
   Save these instructions for future reference.
3. **Attachments / Accessories**
   Do not use attachments or accessories unless recommended by the appliance manufacturer as they may cause hazards, damage product and void warranty.
4. **Installation**
   Do not place or mount this product in or on an unstable or improperly supported location. Improperly installed product may fall, causing serious injury to a child or adult, and damage to the product. Use only with a mounting device recommended by the manufacturer, or sold with the product. To insure proper mounting, follow the manufacturer's instructions and use only mounting accessories recommended by manufacturer.
5. **Power source**
   This product should be operated only from the type of power source indicated on the marking label.

Precautions

Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then contact your local dealer.

Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Do not block the cooling holes on the bracket. This camera has a cooling fan inside the housing. Blocking the cooling holes will cause heat to build up and cause malfunction.
- Care must be taken when you clean the clear dome cover. Scratches and dust will ruin the image quality of your camera. Do not use strong or abrasive detergents when cleaning the camera body. Use a dry cloth to clean the camera when it is dirty. In case the dirt is hard to remove, use a mild detergent and wipe the camera gently.

Installation and Storage

- Do not install the camera in areas of extreme temperatures in excess of the allowable range. (-58°F ~ 122°F / -50°C ~ 50°C)
- Avoid installing in humid or dusty places. The relative humidity must be below 90%.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the camera would be subject to strong vibrations.
- Never face the camera toward the sun. Do not aim at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise the camera may be smeared and damaged.

Regulation

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste in accordance with Directive 2002/96/EC. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By proper waste handling of this product you ensure that it has no negative consequences for the environment and human health, which could otherwise be caused if this product is thrown into the garbage bin. The recycling of materials will help to conserve natural resources.

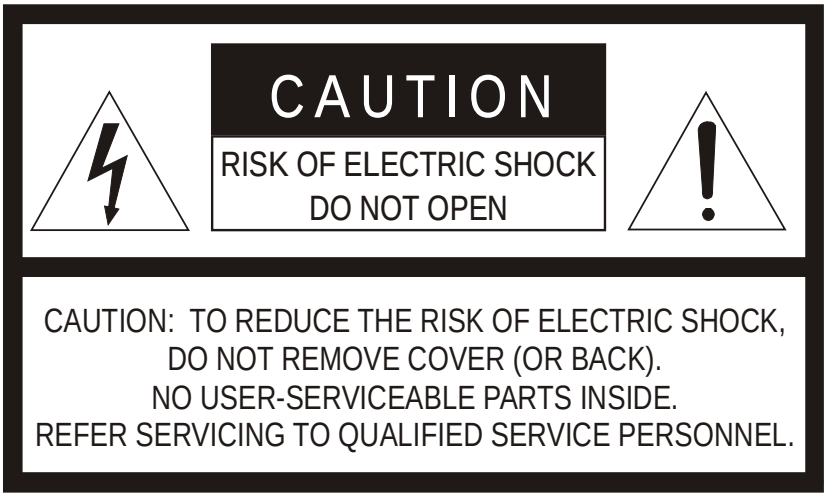
For more details information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Compliance is evidenced by written declaration from our suppliers, assuring that any potential trace contamination levels of restricted substances are below the maximum level set by EU Directive 2002/95/EC, or are exempted due to their application.

Warning

DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.
DO NOT OPEN THE CABINET.
REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

Caution


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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INTRODUCTION

OVERVIEW

OpenEye's 36x Outdoor PTZ Dome, an IP66-rated weatherproof camera, is an excellent solution for outdoor PTZ surveillance. The CM-512 is completely integrated with OpenEye recorders and keyboard controllers, making installation or configuration quick and easy.

OpenEye's CM-512 offers you the options that matter in total security protection. Equipped with a 36x optical zoom, indoor/outdoor temperature controlled housing, and sun shield, the CM-512 camera is ruggedly constructed for every environment.

Product Features

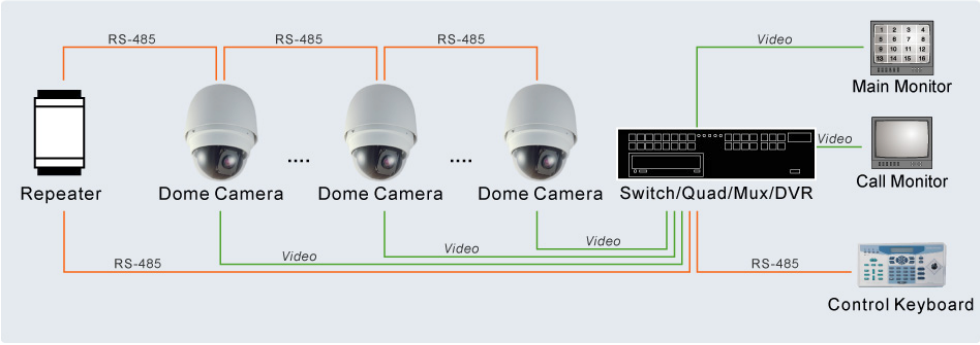
- 36x Optical Zoom
- Wide Dynamic Range
- Backlight compensation
- 650 TVL resolution
- 8 alarm sensor inputs
- IP66 rating
- Integrated sunshield

GENERAL OPERATION REQUIREMENTS

A minimum of one control device is required for operation, such as a control keyboard, or a recorder. The CM-512 includes a built-in receiver that decodes commands from a control device.

Connect dome cameras to other devices, as shown in the diagram below, to complete a video surveillance system.

System Configuration

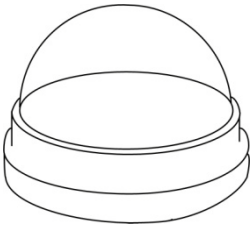
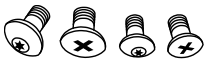
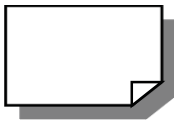
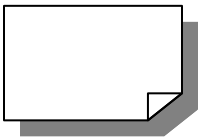
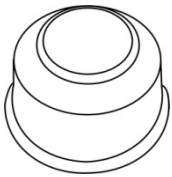
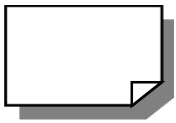
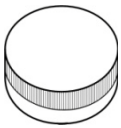


Note To extend the network distance up to 1.2 km (4000 feet) and to protect the connected devices, OpenEye recommends placing a repeater at the mid-point. However, a repeater may be needed with network distances less than 1.2 km if the cables used are not CAT 5, 24-gauge cables. Refer to the repeater's manual for detailed information.

GETTING STARTED

BOX CONTENTS

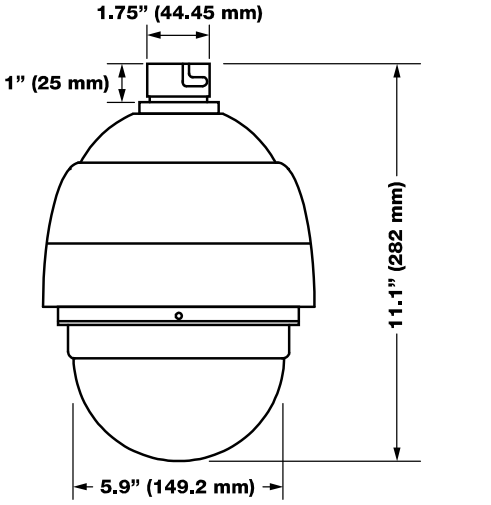
Before proceeding, please check that the box contains the items listed here. If any item is missing or has defects, DO NOT install or operate the product. Contact your dealer for assistance.

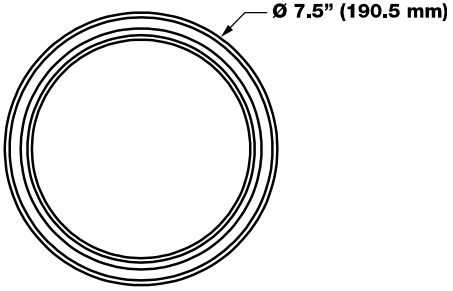
CM-512 Camera	 **Optical Cover**	 **Screws (x4)**
 **Quick Start Guide**	 **User Manual**	 **Waterproof Gasket**
 **Installation Manual**		 **Lubricant**

CAMERA OVERVIEW

Before installing or connecting the dome camera, please refer to this section and complete preparations for dome setup and all switch settings.

Dimensions





- Diameter – 7.5 inches (190.5 mm)
- Height – 11.1 inches (282 mm)

Preparations for Dome Setup

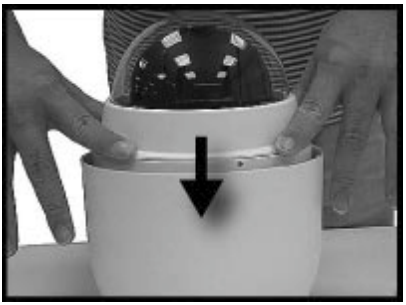
The following installation procedure is for the outdoor dome equipped with the sunshield housing. Please follow the steps below to complete dome housing installation.

1. Unpack the dome package and take out the dome body.

2. Remove the protective cover and PE sheet.
3. Attach the dome cover to the camera body. Before doing that, apply some lubricant to the waterproof gasket. This helps keep moisture out of the dome.

Note The protrusion on the cover must align with one of the four holes on the camera body.

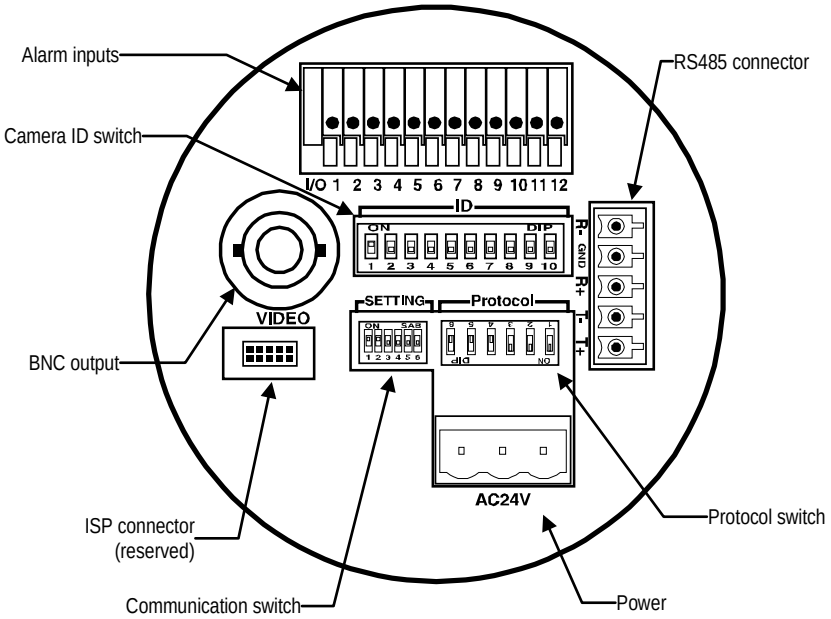
4. Using both hands, gently press the dome cover. Do not press the cover from the dome.



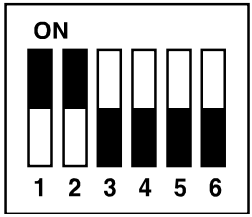
5. Use screws to affix the dome cover to the body.
6. Set the switches located on the bottom of the camera. Information about various switch settings is included later in this user manual.

Connections

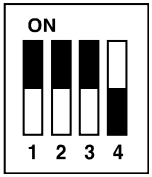
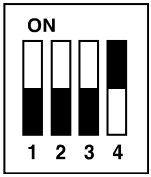
The dome ID and communication switch settings must be set before connecting the dome camera to other CCTV devices. These switches are located on the bottom of the dome camera.



Communication Switch

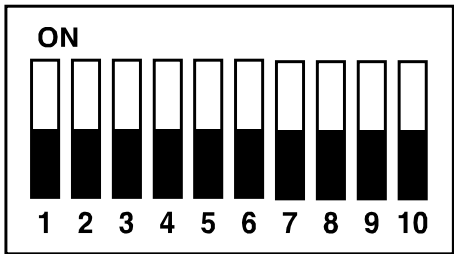
Communication Switch		
	SW1	RS-485 Setting
	SW2	
	SW3	Termination
	SW4	Line Lock
	SW5	System Initialization
	SW6	Reserved

RS-485 is the interface that the dome camera uses to communicate with its control device; for this reason, the RS-485 setup of the dome and the control device must be the same. The RS-485 default setting is half-duplex (see the diagram right). Do not change the default setting without a qualified specialist or supplier's notice.

RS-485 Setting	
Half-duplex	Full -duplex
	

Camera ID Setting

Assign an ID number to your camera if there is more than one camera in the network. The camera ID is set up using the camera ID switch on the back plate of the camera.



For switch configuration details, please refer to Appendix C.

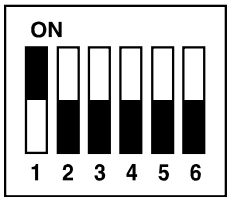
Note No two cameras should have the same ID, or communication conflict may occur.

Protocol Switch

Define the protocol you are going to use based on the devices of your surveillance system. Generally, use one protocol even if the devices are provided by different manufacturers. Use the switch to set your dome control protocol and the baud rate. Refer to the table below and turn the arrow to choose a protocol for your speed dome.

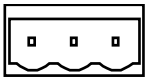
Protocol	Baud Rate Setting	Switch Setting					
		1	2	3	4	5	6
VCL	**9600**	OFF	OFF	OFF	OFF	OFF	OFF
Pelco D	**2400**	ON	OFF	OFF	OFF	OFF	OFF
Pelco P	**4800**	OFF	ON	OFF	OFF	OFF	OFF
Chiper	**9600**	OFF	OFF	ON	OFF	OFF	OFF
Philips	**9600**	ON	OFF	ON	OFF	OFF	OFF
OPTIX 3	**9600**	ON	ON	ON	OFF	OFF	OFF
AD422	**4800**	OFF	OFF	OFF	ON	OFF	OFF
DP P	**9600**	ON	OFF	OFF	ON	OFF	OFF
Pelco D	**4800**	ON	ON	OFF	ON	OFF	OFF
Pelco D	**9600**	OFF	OFF	ON	ON	OFF	OFF
Pelco P	**2400**	ON	OFF	ON	ON	OFF	OFF
Pelco P	**9600**	OFF	ON	ON	ON	OFF	OFF
JVC	**9600**	ON	ON	ON	ON	OFF	OFF
Kalatel-485	**9600**	ON	OFF	ON	OFF	ON	OFF
Kalatel-422	**4800**	OFF	ON	ON	OFF	ON	OFF

Example To set the protocol Pelco D at a 2400 baud rate, the protocol switch should be set as shown..



Power Connector

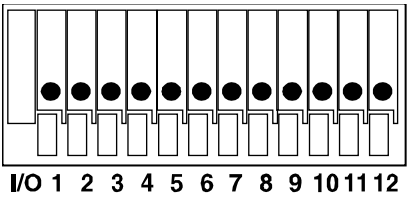
Refer to this diagram for power connector definition before wiring.



1	AC IN +
2	Frame GND
3	AC IN -

Apply Alarm I/O

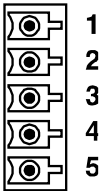
The CM-512 supports 4 digital alarm inputs and 2 digital alarm outputs. Please make sure the alarm connections are properly wired before starting to configure alarm-related settings. Please refer to the pin definition table for alarm system wiring.



Pin	Definition	Pin	Definition
1	Alarm Out NO 1	7	Alarm Out COM 2
2	Alarm Out NC 1	8	GND
3	Alarm Out COM 1	9	Alarm In 4
4	GND	10	Alarm In 3
5	Alarm Out NO 2	11	Alarm In 2
6	Alarm Out CN 2	12	Alarm In 2

RS-485 Connector Definition

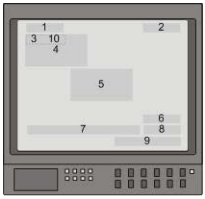
The dome camera uses the RS-485 interface to communicate with a connected control device. Connect a control keyboard to the speed dome using the terminal block. OpenEye recommends using CAT 5 cables for RS-485 communication with a maximum length of 4000 feet (1219 meters) for 24-gauge wire. If the total cable length exceeds 4000 feet, use a repeater to maintain the signals. Refer to the table below for pin definition and wiring.

Connector	Pin Number	Definition
	1	R-
	2	GND
	3	R+
	4	T-
	5	T+

OPERATIONS AND CONFIGURATION

OSD FORMAT

The information displayed on the screen is described in terms of OSD, position, and function description in the table below.



Position	Function	OSD Display		Description
1	Motion	MOTION		Alarm Detect Message
2	Alarm	ALARM 1		Alarm Message
3	Focus Modes & Backlight	A	Auto Focus Mode	
		M	Manual Focus Mode	
		X	Backlight Compensation OFF	
		B	Backlight Compensation ON	
4	Booting Message	XX (Dome Type) ID:001 (Default) DSCP/9600 (Default) INITIALIZING		Shows Dome Type, ID Address, Protocol and Baud Rate
5	Error Message	PAN ERROR TILT ERROR CAM MODULE ERROR		Shows system initializing error message
6	Zoom Ratio	X1	Present Zoom Ratio (Optical Zoom/Digital Zoom)	
7	Title	Maximum 20 characters for each title 16 sets of titles are available\\		
8	Camera ID	001		Show the camera ID
9	Time	XXXX/XX/XX XX:XX		Year/Month/Day Hour:Minute
10	Position Display	XX YYY/YY		XX: facing direction of PTZ YYY/YY: Angle of PTZ, (0 ~ 359, 10 ~- 90)

OSD MENU TREE

The OSD setup menu structure of the 512 dome camera is listed below. The star symbol indicates the factory default. For detailed function descriptions, see Configuration Menu ON.

Item	Layer 1	Layer 2	Layer 3	Default
LANGUAGE	<ENGLISH>, <JAPANESE>, <PORTUGUESE>, <SPANISH>, <FRENCH>, <GERMAN>, <ITALIAN>, <POLISH>, <RUSSIAN>, <TRADITIONAL CHINESE>,<SIMPLIFIED CHINESE>, <TURKISH>			ENG-LISH
DEFAULT CAMERA	<ON>, <OFF>			ON
BACKLIGHT	<ON>			OFF
	<OFF>			
FOCUS	AUTO	AF MODE <NORMAL>, <Z. TRIG.>, <PTZ TRIG.>		NOR-MAL
		EXIT + SAVE		
	MANUAL			

Item	Layer 1	Layer 2	Layer 3	Default
AE MODE	EXPOSURE COMP.	<OFF>, EXPOSURE VALUE: <-10.5dB> ~ <10.5dB>		OFF
		EXIT + SAVE: YES		
	AE MODE	AUTO	BRIGHT VALUE / SHUTTER SPEED / IRIS VALUE / GAIN VALUE: AUTO	AUTO
			EXIT + SAVE: YES	
		SHUTTER	SHUTTER SPEED: <1/60> ~ <1/10000> SEC	
			EXIT + SAVE: YES	
		IRIS	IRIS VALUE<F1.6> ~ <F28>	
			EXIT + SAVE: YES	
		MANUAL	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: <1/60> ~ <1/10000> SEC	
			IRIS VALUE: <F1.6> ~ <F28>	
			GAIN VALUE <-3> dB ~ <28>dB	
			EXIT + SAVE: YES	
	EXIT+SAVE	YES		

Item	Layer 1	Layer 2	Layer 3	Default
WBC MODE	AUTO (Auto White Balance)			☆
	INDOOR			
	OUTDOOR			
	ATW (Auto-tracing WBC)			
	MANUAL	R GAIN <000> ~ <127>		
		B GAIN <000> ~ <127>		
		EXIT + SAVE: YES		
IMAGE CTRL	MAX DIGITAL ZOOM	<OFF>, <2x> ~ <12x>		OFF
	SLOW SHUTTER	<ON>, <OFF>		OFF
	D.N.R.	2 D.N.R. <ON>, <OFF>		
		3 D.N.R. <ON>, <OFF>		
		EXIT + SAVE: YES		
	IMAGE INVERSE	<ON>, <OFF>		OFF
	FREEZE	<ON>, <OFF>		OFF
	APERTURE	<01> ~ <16>		7
	STABILIZER	<ON> , <OFF>		OFF
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Default
TELE-METRY CTRL	FLIP	<OFF>, <M.E.>, <IMAGE>		OFF
		EXIT + SET: YES		
	ANGLE ADJUSTER	MIN ANGLE <-10 ~ +10 DEG>		0
		MAX ANGLE <080 ~ 100 DEG>		90
		EXIT + SET: YES		
	SPEED BY ZOOM	<ON>, <OFF>		OFF
	AUTO CALIBRATE	<ON>, <OFF>		OFF
	PASSWORD	<ON>,<OFF>		OFF
	OSD AUTO CLOSE	<OFF>, <10> ~ <30> SEC		OFF
	SYSTEM RESET	SYSTEM RESET: <YES>		
		DEFAULT SYSTEM: <YES>		
		EXIT <YES>		
	EXIT	YES		
ID DISPLAY	<ON>, <OFF>			ON
TITLE DISPLAY	<ON>, <OFF>			OFF
TITLE SETTING	<0> ~ <9>, <A> ~ <Z>, <:>, </>, <.>, <,>, <(>, <)>, <+>, <?>, <->			
PRESET	PRESET SET	<001>~<256>		ENTER
	PRESET RUN	<001>~<256>		ENTER
	EXIT	YES		
TOUR	TOUR LINE	<1> ~ <8>		1
	TOUR POINT	<01> ~ <64>		1
	PRESET POS.	<001> ~ <255>, <END>		END
	SPEED	<01> ~ <15>		1
	DWELL TIME	<000> ~ <127> SEC.		0
	RUN TOUR	ENTER		
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Default
AUTOSCAN	AUTOSCAN LINE	<1> ~ <4>		1
	START POINT	<PT MOVE >, <TO SAVE>		
	END POINT	<PT MOVE>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		RIGHT
	SPEED	<01> ~ <04>		1
	RUN AUTOSCAN	ENTER		
	EXIT	YES		
PATTERN	PATTERN LINE	<1> ~ <8>		1
	RECORD START	ENTER		
	RECORD END	ENTER		
	RUN PATTERN	ENTER		
	EXIT	YES		
HOME SETTING	HOME FUNCTION	<ON>, <OFF>		OFF
	SELECT MODE	<PRESET>, <TOUR>, <AUTOSCAN>, <PATTERN>		PRESET
	PRESET POINT	<001> ~ <256>		1
	RETURN TIME	<001> ~ <128> MIN		1
	GO	ENTER		
	EXIT	YES		
IR FUNCTION	<AUTO>	THRESHOLD <MID>, <HI>, <LOW>		AUTO
		EXIT + SAVE: YES		
	<MANUAL>	<ON>, <OFF>		
		EXIT + SAVE: YES		

Item	Layer 1	Layer 2	Layer 3	Default
ALARM SETTING	ALARM PIN	<1> ~ <4>		1
	ALARM SWITCH	<ON>, <OFF>		OFF
	ALARM TYPE	<NO> (Normal Open), <NC> (Normal Close)		NC
	ALARM ACTION	<PRESET>, <TOUR>, <AUTOSCAN>, <PATTERN>		PRESET
	PRESET POINT	<001> ~ <256>		1
	SEQUENCE LINE	<1> ~ <8>		1
	AUTOSCAN LINE	<1> ~ <4>		
	PATTERN LINE	<1> ~ <8>		
	DWELL TIME	<001> ~ <127> Sec., <ALWAYS>		ALWAYS
	ALARM OUTPUT	<1>, <2>, <1+2>, <OFF>		
	EXIT	YES		
ALARM DETECT	NONE			
WDR FUNCTION	<ON>, <OFF>			OFF

Item	Layer 1	Layer 2	Layer 3	Default
PRIVACY MASK	PRIVACY SWITCH	<ON>, <OFF>		OFF
	TRANSPARENCY	<ON>, <OFF>		OFF
	COLOR	<BLACK>, <WHITE> ,<RED> , <GREEN> , <BLUE>, <CYAN> , <YELLOW>, <MAGENTA>, <MOSAIC 1>, <MOSAIC 2>, <MOSAIC 3>		BLACK
	SET MASK	<01> ~ <20>	H CENTER: L/R	
			V CENTER: D/U	
			H SIZE <000> ~ <080>	
			V SIZE <000> ~ <060>	
			EXIT + SAVE	
	CLEAR MASK	<01> ~ <20>		
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Default
TIME SETTING	TIME DISPLAY	<ON>, <OFF>		OFF
	SET YEAR	<00> ~ <99>		
	SET MONTH	<01> ~ <12>		
	SET DAY	<00> ~ <31>		
	SET HOUR	<00> ~ <23>		
	SET MINUTE	<00> ~ <59>		
	EXIT+SAVE			
SCHEDULE	SWITCH	<ON>, <OFF>		OFF
	POINT	<01> ~ <32>		1
	HOUR	<00> ~ <23>		0
	MINUTE	<00> ~ <59>		0
	MODE	NONE	NO FUNCTION	☆
		PRESET	PRESET POINT <001> ~ <256>	
		TOUR	TOUR LINE <1> ~ <8>	
		AUTOSCAN	AUTOSCAN LINE <1> ~ <4>	
		PATTERN	PATTERN LINE <1> ~ <8>	
		IR FUNCTION	IR FUNCTION <AUTO>, <ON>, <OFF>	
	SCHEDULE RESET	YES		
	EXIT	YES		
EXIT OSD	YES			

CONFIGURATION MENU

The detailed functions and parameter settings of your high speed dome can be set through the OSD (On Screen Display) menu with a control device, such as a control keyboard. The items in the OSD menu are described in the following sections. For further detailed setup procedures, please refer to the user manual of your installed control devices.

Entering the OSD Menu

To enter the OSD menu of the selected camera, press CAMERA MENU on the control keyboard and hold for 3 seconds.

Selecting a Setup Item on the OSD Menu

To select a setup item, use the direction keys on the keyboard to move the OSD cursor to your desired selection.

Setting Up an OSD Item

Use direction keys on keyboard to move the OSD cursor in the OSD menu.

For items with →, press right/left direction keys on the control keyboard to select.
For items with ↓, press the <CAMERA MENU> key on the control keyboard to enter the sub menu.
For items with →↓, users can use the right/left direction keys to select functions, and then press the CAMERA MENU key on the control keyboard to enter the sub menu.

Note In the Camera OSD menu, the CAMERA MENU key functions as ENTER and EXIT.

Language

The camera supports multi-language OSD function; the available languages include English, Japanese, Portuguese, Spanish, French, German, Italian, Polish, Russian, Traditional Chinese, Simplified Chinese, and Turkish. The default language is English.

MAIN PAGE 1	
LANGUAGE	ENGLISH
DEFAULT CAMERA	ON
BACKLIGHT	OFF
FOCUS	AUTO
AE MODE	ENTER
WBC MODE	AUTO
SETUP MENU 1	ENTER
SETUP MENU 2	ENTER

Changing the Display Language

To change the OSD language, follow these steps.

1. Press CAMERA MENU on the control keyboard and hold for 3 seconds to enter the OSD menu.
2. Use the direction keys on the keyboard to select **LANGUAGE** on the **MAIN PAGE 1** screen.
3. Press the LEFT and RIGHT arrow keys to change the desired language.

Tip As you press the arrow keys, the OSD will automatically change to the language you selected.

Load Defaults

The LOAD DEFAULTS option is used to restore some camera settings to the default settings, including Backlight, Focus, AE, WBC, Aperture, Zoom Speed and Digital Zoom. Once any one of the items is modified, the setting will become OFF automatically. Select ON for this item to return the camera settings to the default parameters.

Backlight

The Backlight compensation function prevents the center object from being too dark in environments with excessive light from behind the object..

Focus

The focus of the dome camera can be operated in two modes: Auto Focus and Manual Focus.

Auto

The optimum focus is achieved by the internal digital circuit. Auto Focus options include the following.

- **NORMAL –** The camera will automatically adjust the focus of the image.
- **Z. TRIG. (Zoom Trigger) –** Auto focus is activated by the Zoom command.
- **PTZ. TRIG. (Pan/Tilt/Zoom Trigger) –** Auto focus is activated when the camera Pans, Tilts, or Zooms.

Manual

In this mode, users can adjust the focus speed the FOCUS NEAR/FAR key on the keyboard control.

After completing setup of focus, go back to the MAIN PAGE 1 and continue to set the AE mode.

AE Mode

The exposure is the amount of light received by the image sensor and is determined by how wide you open the lens diaphragm (iris adjustment), how long you keep the sensor exposed (shutter speed), and other exposure parameters. With this item, users can define how the Auto Exposure (AE) function works.

- **Exposure Compensation –** The exposure value ranges from – 10.5 dB ~ 10.5 dB. Select OFF to disable the function.
- **Auto –** In this mode, the shutter, iris, and AGC control functions work automatically to compensate for the light exposure on the image sensor for consistent video output.
- **Shutter –** With this option, the priority of the Shutter is higher than the priorities of the Iris and AGC. The Iris and AGC circuit will function automatically, cooperating with the Shutter to get consistent exposure. The range of shutter speed is 1/10000 ~ 1/50.
- **Iris –** With this option, the priority of the Iris is higher than the Shutter and AGC. The Shutter and AGC circuit will function automatically, cooperating with the Iris to get consistent exposure. The Iris value is fixed at f1.6.
- **Manual –** With this option, you can manually adjust the shutter speed or gain value.

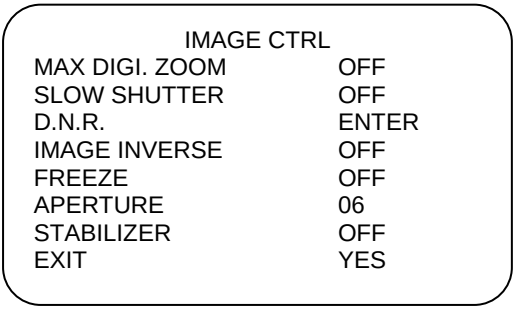
WBC (White Balance Control) Mode

The unit for measuring the color temperature ratio is Kelvin (K). you can select one of the White Balance Control modes according to the condition. The following table shows the color temperature of some light sources.

Light Sources	Color Temperature in K
Cloudy Sky	6,000 to 8,000
Noon Sun and Clear Sky	6,500
Household Lighting	2,500 to 3,000
17-watt Bulb	2,820
Candle Flame	1,200 to 1,500

- **Auto –** In this mode, White Balance works within its color temperature range and calculates the best-fitting White Balance.
- **Indoor –** Sets color temperature at 3200K.
- **Outdoor –** Sets color temperature at 5800K.
- **ATW** (Auto-Tracing White Balance) **–** Removes signals between 2000K and 10000K.
- **Manual –** In this mode, users can change the White Balance value manually. The Adjustable R-gain and B-gain ranges are between 00 and 127.

After WBC-relevant parameter setups are completed, exit WBC MODE menu and go back to the MAIN PAGE 1 to continue to set other functions under the Image Ctrl menu.



Digital Zoom

With this item, users can enable or disable the 12x Digital Zoom. The Digital Zoom will be activated after the full Optical Zoom level is reached. Digital zoom ratio is adjustable between 2x and 12x. The default setting is OFF.

Note Optical zoom uses the lens within the camera to achieve the desired effect. Optical zoom maintains the same quality and full resolution in the zoomed image. Digital Zoom takes a portion of an image and expands it, reducing image quality.

Slow Shutter

The shutter speed determines how long the image sensor is exposed to light. Enable this function in order to see clear images in a dark environment. The Slow Shutter function will automatically adjust the shutter speed based on lighting conditions.

DNR

With 2D/3D Digital Noise Reduction (DNR), the processor analyzes pixel by pixel and frame by frame to eliminate environmental noise signal so that the highest quality image can be produced even in low light. 3D DNR is more effective at removing digital noise than 2D DNR>

Image Inverse

Users can select ON to make the displayed image inversed vertically and horizontally. Occasions to employ the function include conferences, demonstration, testing, etc. When this function is enabled, the preset masks will be set off automatically (see Privacy mask). The default setting is OFF.

Freeze

The Freeze function allows you to freeze the image while the camera is moving between preset positions such as in PRESET and SEQUENCE modes. For example, when the camera is programmed to move from point A to point B, the viewer will see point A until the view directly cuts to point B without displaying the path along which the camera moves between the points.

Aperture

Under this setup menu, users can adjust enhancement of the edges of objects in the picture. The parameters of the aperture are adjustable, ranging from 00 to 16.

Stabilizer

The Stabilizer function is designed to accommodate for camera sway when the camera is installed on a pole. This function will keep the image steady when the camera sways back and forth. When enabled, the image stabilizer crops the viewable area of the image to allow for sway correction.

Exit

Exit the IMAGE CTRL menu and go back to the MAIN PAGE 1 to set other functions under TELEMETRY CTRL.

Telemetry Control

TELEMETRY CTRL	
FLIP	ENTER
ANGLE ADJUSTER	ENTER
PT POSITION	ENTER
SPEED BY ZOOM	OFF
AUTO CALIBRATE	OFF
PASSWORD	OFF
OSD AUTO CLOSE	20 SEC
SYSTEM RESET	ENTER
EXIT	YES

Flip

Users can track an object continuously when it passes through under the dome camera with setting Flip to IMAGE (digital flip) or ME (mechanical flip).

- **IMAGE –** Digital Image Flip, which enables users to keep tracking objects seamlessly. Almost no delay occurs when compared to ME mode.

Note The Privacy Mask function will be automatically disabled if the Image Flip function is enabled, and the screen will display “MASK WILL BE SET OFF.”

- **ME (Mechanical Flip) –** ME is a standard mechanical operation. As the dome tilts to the maximum angle, it will pan 180°, and then continue tilting to keep tracking objects.

Note This function can only be controlled manually. If a Preset or a point for another function is set in a position that can only be reached through a flip motion, the position will not be reached if FLIP is turned off.

- **Off –** Select this to disable the flip function.

Note To make the dome tilt within a specific range, such as -10° to +100°, go to ANGLE ADJUSTER (see next section) to set the angle range. Otherwise, the default setting is 90°.

Angle Adjusters

Use Angle Adjuster to adjust the angle of view. The range of the view angle is between -10° and +100° in the ME, FLIP and FLIP OFF modes, and between -10° and +190° in the IMAGE FLIP mode.

PT Position

PT Position can display the Pan/Tilt position of the dome camera on the screen.

- **PT Display –** Enable this time to display the pan/tilt position on the screen. The display format will be "XX YYY/ YY."
- **Set Pan Zero –** Using this option, you can set a cardinal direction, such as North, as the zero coordinate. N, E, S, W, NE, SE, SW, and NW will display on the screen, depending on which direction the camera is facing. The PAN range is from 0˚ to 359˚, and the TILT RANGE is from 10˚ to 90˚.
- **Exit + Set –** Exit PT Position and go back to SETUP MENU 2 to continue setting other functions.

Speed by Zoom

When set to ON, the pan/tilt speed will automatically adjust when zooming. A large zoom ratio will result in a low rotating speed.

Auto Calibration

There are two infrared ray check points in each dome—one horizontal and one vertical. During installation or maintenance, the dome camera's position may be moved. Therefore, the relative distance between the original set point and the check point will be changed. If the Auto Calibration function is enabled, the dome will automatically detect the matter and reset the horizontal point back to the original position.

Password

If this function is enabled, users will be required to enter the password each time they access the OSD menu.

1. Choose a number with the direction keys and press CAMERA MENU to enter the number.
2. Confirm the password by entering it again.
3. Click **SAVE** and press CAMERA MENU to save the password.
4. Click **EXIT** to exit the password setting page.

If this function is enabled, a password request message will appear when you press CAMERA MENU. Enter the password and press ENTER to access the OSD main menu.

Note When enabling this function for the first time, you will need to enter the Master Password: 9527.

OSD Auto Close

Use this function to set your camera to turn off the on-screen display (OSD) after a period of inactivity. set the OSD to close automatically after 1 to 30 seconds of inactivity, or set the function to OFF to leave the OSD open unless a user manually closes it.

System Reset

System Reset – Select this item for system restart. The system will not return to default settings.

Default System – Select this item to return to default settings.

Exit

Exit TELEMETRY CTRL and go back to the MAIN PAGE 1. Go to MAIN PAGE 2 to set other functions.

ID Display

MAIN PAGE 2	
ID DISPLAY	ON
TITLE DISPLAY	OFF
TITLE SETTING	01
PRESET	ENTER
TOUR	ENTER
AUTOSCAN	ENTER
PATTERN	ENTER
HOME SETTING	ENTER

Press the direction key down to change the MAIN MENU page from 1 to 2. The main menu item, ID DISPLAY, will appear on the top. To choose whether the dome ID will be displayed on screen for identifying the domes, select On or Off. For more information, please refer to Dome ID Setting.

On – Display the ID address of the selected dome on the lower right portion of the screen.

Off – Hide the ID address of the selected dome.

Title Display

You can name a view area and the title will be displayed on screen for easy recognition.

On – Display the title set for a view area on screen while the camera is aimed at the view area.

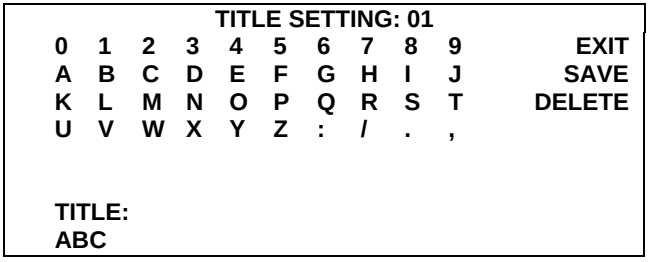
Off – No title will be displayed on the screen.

Title Setting

Up to 16 zone titles can be set with a maximum of 20 characters for each title. Each view area title can be named with a privacy mask ID number for future recognition.

Setting a Camera Title

1. Use the keyboard to adjust the dome to a view area that you want to assign a title to.
2. Press CAMERA MENU on the control keyboard and hold for 3 seconds to enter the OSD menu.
3. Press the direction key to go to the **MAIN PAGE 2** and select **Title Setting**.
4. Select a number to represent the view area.
5. Press the CAMER MENU key to go to the editing page.



6. Choose a character with the direction keys and press CAMERA MENU to select the character.
7. To delete characters, move the cursor LEFT or RIGHT and press CAMERA MENU to select a character in the entry field. The move the cursor to **Delete** and press CAMERA MENU to delete the selected character.
8. After setting the title, go back to **MAIN PAGE 2** to continue setting preset points.

Preset

You can set up to 256 preset points by following these instructions.

Tip You can set preset points through the keyboard. Refer to the control keyboard user manual for more information.

Setting Preset Points

1. Press the right/left key on the keyboard to select a number.
2. Press CAMERA MENU on the keyboard, then rotate the camera to the desired position.
3. Press CAMERA MENU again to save the defined preset point.
4. Once you have completed setup of a preset point, you can move the cursor to the next item to run the preset point.

Running a preset

Select the preset point that you want to execute. Press ENTER. The camera will move to the desired position.

Exit the Preset Menu

Exit the PRESET menu and go back to MAIN PAGE 2 to continue setting up a tour.

Tour

This function executes pre-positioning of the pan, tilt, zoom, and focus features in a given tour for a camera. Before setting this function, you must define at least two preset points.

TOUR	
TOUR LINE	1
TOUR POINT	01
PRESET POSITION	001
SPEED	01
DWELL TIME	001
RUN TOUR	ENTER
EXIT	YES

Tour Line

There are eight sets of sequence lines built into the camera. Use the left or right direction keys to select a line and then set the tour points.

Tour Point

Up to 64 points can be specified for each tour line. The tour points represent the order of preset points that the dome will automatically run. The following setup items will influence how the camera runs through each tour point.

Preset Position

Assign a specific preset position to the selected tour point.

Speed

Set the speed from one sequence point to the next. The speed can be set between 1 and 15. PAN speed ranges between 10 to 400 degrees per second, and TILT speed ranges between 8 and 400 degrees per second.

Dwell Time

Set the duration of time that the camera will stay at a tour point, between 0 and 15 seconds. If this is set to 0, the camera will stay at this point until you manually move the camera.

Run Tour

Run the tour line manually.

Exit

Select the item to exit the TOUR menu and go back to MAIN PAGE 2 to carry on setup of Autoscan.

Note You can execute the Tour function using the keyboard controller. Refer to the keyboard user manual for more information.

Autoscan

Autoscan refers to the motion of scanning an area horizontally so that the camera can catch a horizontal view. The parameters are listed as follows.

AUTOSCAN	
AUTOSCAN LINE	1
START POINT	TO FIND
END POINT	TO FIND
DIRECTION	RIGHT
SPEED	01
RUN AUTOSCAN	ENTER
EXIT	YES

Autoscan Line

There are four sets of Autoscan lines built into the dome camera. Choose a line to execute using the left or right direction keys. You can also command the camera to pan endlessly by setting the start point the same as the end point.

Start Point

1. Move the cursor to START POINT and press ENTER while the item TO FIND is flashing. The item will then turn to TO SAVE.
2. Move the camera to a desired position and press ENTER to save the position as the start point. The cursor will move to END POINT automatically.

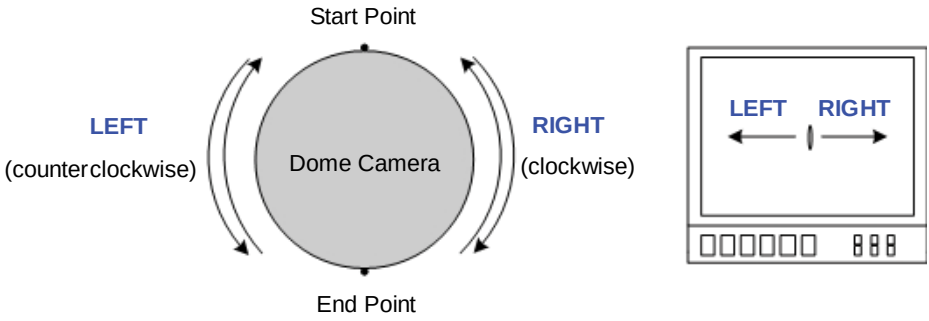
Note The tilt and zoom values of the start point will be recorded and fixed for the selected Auto-Pan line.

End Point

Set the end point after the start point is defined. Pan the camera to another position and press ENTER to save the position as the end point.

Direction

Use this to set the AUTOSCAN directions on the camera. The dome will start to pan clockwise from the start point to the end point if your selection is RIGHT, and then return to the start point. The dome will start to pan counter-clockwise from the start point to the end point if your selection is LEFT.



Speed

Define the rotation speed while running Autoscan between 1 and 4 (10 to 45 degrees per second).

Run Autoscan

After all settings related to Autoscan are configured, use this to execute the auto scan.

Exit

Exit the AUTOSCAN setup menu. Go back to MAIN PAGE 2 to continue setting up Pattern.

Note You can execute the Autoscan function using the keyboard controller. Refer to the keyboard user manual for more information.

Pattern

A pattern is a route that can be stored and recalled to execute repeatedly.

PATTERN	
PATTERN LINE	1
RECORD START	ENTER
RECORD END	ENTER
RUN PATTERN	ENTER
EXIT	YES

Pattern Line

Create up to eight Pattern paths with the camera. Using the left or right keys, select an available line, then follow the steps below to start recording the pattern path.

Record Start

To record the PATTERN path.

1. Rotate the camera to the desired view area (for some protocols, you may need to do it before entering the OSD), and press ENTER to build the pattern path using the joystick on the control device. The percentage of the memory buffer will be displayed on the screen.
2. Pan and tilt the camera to form a path.

Note Beware of the memory size when building a pattern path. Once the buffer percentage reaches 100%, recording will stop.

Record End

The cursor will be moved to RECORD END when building the pattern line. When the setting is completed, press ENTER to save the path.

Run Pattern

After setting the pattern, select Run pattern to execute the pattern function.

Exit

Exit the PATTERN menu and return to MAIN PAGE 2 to continue setting up the Home setting.

Note You can execute the pattern function using the keyboard controller. Refer to the keyboard user manual for more information.

Home Setting

You can set an operation mode to ensure constant monitoring. If the dome idles for a period of time, the preset function will be activated automatically. This is the HOME function. This function allows constant and accurate monitoring to avoid the dome idling or missing events.

HOME SETTING	
HOME FUNCTION	OFF
SELECT MODE	PRESET
PRESET POINT	001
RETURN TIME	001 MIN.
GO	ENTER
EXIT	YES

Home Function

The item is used to enable or disable the HOME function. Use the left or right direction keys of the control keyboard to change the setting.

Select Mode

Select one of the modes that the camera should execute when the HOME function is enabled and the RETURN TME expires. The options include PRESET, TOUR, AUTOSCAN, and PATTERN. Use the left or right direction keys of the control keyboard to change the setting, and the items below will change in cooperating with your selection.

Preset Point

Select a preset point where the dome should go after the Return Time function is activated. The preset point(s) should be set prior either in the PRESET setup menu or through the keyboard.

- **Tour Line –** Select a tour line that the dome camera should execute after the Return Time function is activated. The tour line(s) should be set prior either in the PRESET setup menu or through the keyboard.
- **Autoscan Line –** Select an Auto Scan line that the camera should execute after the Return Time function is activated. The Auto Scan line(s) should be defined prior either in the AUTOSCAN setup menu or through the keyboard.
- **Pattern Line –** Select a pattern line that the dome camera should execute after the Return Time function is activated. The pattern lines should be defined prior either in the PATTERN setup menu or through the keyboard.

Return Time

The camera starts to count down RETURN TIME when the camera idles, and then execute the SELECT MODE function when the return time is up. The RETURN TIME ranges from 1 to 128 minutes.

Go

You can execute the HOME function by selecting this item, if the HOME function is enabled.

Exit

Exit the HOME SETTING menu. Then go to the **MAIN PAGE 3** to continue configuring your camera.

IR Function (Removable IR Cut)

MAIN PAGE 3	
IR FUNCTION	AUTO
ALARM SETTING	ENTER
ALARM DETECT	NONE
WDR FUNCTION	OFF
PRIVACY MASK	ENTER
TIME SETTING	ENTER
SCHEDULE	ENTER
EXIT OSD	YES

With the IR cut filter, the dome can still catch a clear image at night or in very dark lighting conditions. During the day, the IR cut filter will be on to block the infrared light for a clear image. At night, the IR cut filter will be removed to catch infrared light, and the images will be displayed in black and white.

Threshold

The Internal circuit will automatically decide when to remove the IR cut filter according to the image brightness level according to the sensitivity level chosen (LOW, MID, and HI).

Note LOW indicates a higher sensitivity and can improve the reliability of the lens so that it's easier to switch to Day mode and relatively difficult to switch to Night mode. Hi indicates that it will be easier to switch to Night mode and more difficult to switch to Day mode.

Manual

- **IR Manual On –** Select this option to remove the IR cut filter and put the camera into BW (Night) mode.
- **IR Manual Off –** Select this option to engage the IR cut filter and put the camera into Color (Day) mode, disabling IR function.

Alarm Setting

The integrated high speed dome camera provides eight alarm inputs and one alarm output (NO or NC) to connect with alarm devices. With this function, the dome can be integrated with an alarm system to capture images of alarm events as they occur. For wiring, please refer to the installation manual and/or qualified service personnel. Adjustable alarm parameters are listed here.

ALARM SETTING	
ALARM PIN	1
ALARM SWITCH	OFF
ALARM TYPE	N.C.
ALARM ACTION	PRESET
PRESET POINT	001
DWELL TIME	ALWAYS
ALARM PRIORITY	1
EXIT	YES

Alarm Pin

The dome provides 8 alarm inputs and 1 output (NO or NC). Select an alarm connector to set parameters with this item, then set the alarm-related parameters in the Alarm Setting menu. For alarm pin definitions, please refer to Alarm Pin Definitions or the installation manual.

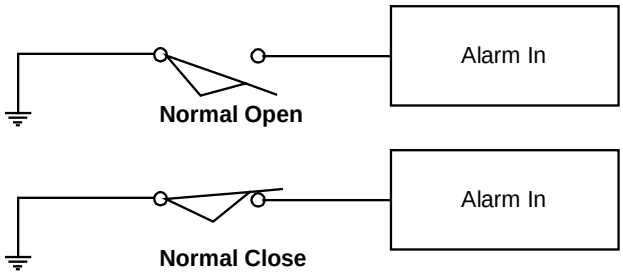
Note If two or more alarm pins are triggered at the same time, the alarm pin with the lower number will have higher priority. For example, if Alarm 1 and Alarm 3 are triggered simultaneously, Alarm 1 will have priority.

Alarm Switch

The item is used to enable or disable the selected alarm pin function. Use the left or right direction keys on the control keyboard to change the setting.

Alarm Type

There are two alarm types: Normally Open and Normally Closed, which are illustrated here. Select an alarm type that corresponds with the alarm application.



Alarm Action

The alarm actions include PRESET, SEQUENCE, AUTOPAN, and CRUISE. Select one of these modes so that certain actions will be executed when an alarm is triggered. Use the right direction key of the control keyboard to select a particular action mode and the items listed below will change in accordance with your selected alarm action.

Note When an alarm condition is released, the camera will return to pre-alarm status.

Preset Point

Select a preset point where the dome should be positioned when the alarm pin is triggered. The preset point(s) should be set earlier in either the PRESET setup menu or through the keyboard.

- **Tour Line –** Select a sequence line that the camera should execute when an alarm pin is triggered. The tour line should be defined earlier in the TOUR setup menu or through the keyboard.
- **Autoscan Line –** Select an Autoscan line that the camera should execute when an alarm pin is triggered. The Autoscan line should be defined earlier in the AUTOSCAN setup or through the keyboard.
- **Pattern Line –** Select a pattern line that the camera should execute when an alarm pin is triggered. The pattern line(s) should be defined earlier either in the PATTERN setup menu or through the keyboard.

Dwell Time

The Dwell Time is the duration of execution for an alarm action. If the PRESET mode is selected, the camera will always return to the selected preset position and stay there for a user-defined time period (1-127 seconds / ALWAYS). If other modes are selected (TOUR, AUTOSCAN, or PATTERN), the dome will continue to execute the selected mode until the alarm condition is released or users rotate the dome.

Note The dwell time is only adjustable when selecting Preset as the alarm action.

Alarm Output

The Alarm Output setting allows you to select which alarm (relay) output to activate when the alarm input is activated. The CM-512 has two available relays, and you can select to use **1**, **2**, or both (**1 + 2**), as well as **Off** to disable the function.

Exit

Exit the ALARM SETTING menu and go back to MAIN PAGE 3 to continue configuring the WDR function.

Wide Dynamic Range (WDR)

The Wide Dynamic Range (WDR) function is used to resolve differing contrasts between indoor and outdoor lighting and enhance image quality. WDR enables the camera to catch detailed data from a darker indoor scene.

- **On –** Enable the WDR function to automatically adjust the image
- **Off –** Disable the WDR function.

Privacy Mask

The purpose of the Privacy Mask function is to avoid any intrusive monitoring. Users can adjust the camera view position using the joystick and adjust the mask size and area via the direction keys on the control keyboard. The dome camera will recognize the center of the selected view as a starting point, so the joystick will be locked as users enter the SET MASK menu. Refer to the following descriptions for setting the privacy masks.

PRIVACY MASK MENU	
PRIVACY SWITCH	OFF
TRANSPARENCY	OFF
COLOR	BLACK
SET MASK	01
CLEAR MASK	01
EXIT	YES

Note The Image Flip function and the Image Inverse function will be disabled automatically while the Privacy mask function is enabled.

Privacy Switch

Enable or disable the masking function. Set this to ON before configuring mask zones.

Transparency

The privacy masks can be set to be transparent by selecting ON.

Color

Choose BLACK, WHITE, RED, GREEN, BLUE, CYAN, YELLOW, or MAGENTA as the color of your privacy mask.

Set Mask

After pressing ENTER to enter the sub-menu of the SET MASK, the dome will memorize the present position as the privacy mask position. Up to 16 masks can be set. The camera prevents the mask zones from being set too close to one another.

MASK01 MENU	
H CENTER	L/R
V CENTER	D/U
H SIZE	000
V SIZE	000
EXIT+SAVE	YES

- **H CENTER –** The original center of a mask zone is the center of the screen. You can move the center of the mask zone to another position by adjusting this value through the use of the LEFT or RIGHT keys on the keyboard.
- **V CENTER –** The original center of a mask zone is the center of the screen. You can move the center of the mask zone to another position by adjusting this value through the use of the LEFT or RIGHT keys on the keyboard.
- **H SIZE (00 ~ 80) –** Adjust the horizontal size of a privacy mask using this item. Setting the H size to 0 can delete the selected mask.
- **V SIZE (00 ~ 60) –** Adjust the horizontal size of a privacy mask using this item. Setting the V size to 0 can delete the selected mask.

Note The mask size should be limited to the dimensions bound by the screen, whatever the optical zoom is set to.

Clear Mask

To delete a preset mask zone, follow these steps.

1. Select the mask zone that will be erased.
2. Press ENTER to confirm the selection.

Exit

Exit the PRIVACY MASK menu and go back to MAIN PAGE 3 to continue setting up time-related options.

Time Setting

The time setting function is used to set the time-related parameters of the integrated high speed dome. Each item in the menu is listed as follows.

TIME SETTING	
TIME DISPLAY	OFF
SET YEAR	00
SET MONTH	01
SET DAY	00
SET HOUR	00
SET MINUTE	00
EXIT+SAVE	YES

- **Time Display –** Select ON to display time information on screen or OFF to not display the information.
- **Year / Month / Day –** The items are for setting up the system date.
- **Hour / Minute –** The items are for setting up the system time.
- **Exit + Save –** Exit the TIME SETTING menu and go back to MAIN PAGE 3 to configure the schedule.

Schedule

The Schedule function enables users to program a preset point or function (Tour, Autoscan, or Pattern) automatically to be executed in a specific period of time.

SCHEDULE	
SWITCH	OFF
POINT	00
HOUR	00
MINUTE	00
MODE	PRESET
PRESET POINT	001
SCHEDULE RESET	YES
EXIT	YES

Switch

Enable or disable the schedule function.

Point

Arrange up to 32 sets of schedule points. Each set of schedule points can be assigned one kind of schedule mode.

Hour / Minute

Set up the time to execute each schedule point.

Mode

Set up the schedule function of the selected schedule point using these options.

- NONE
- PRESET
- TOUR
- AUTOSCAN
- PATTERN
- IR FUNC (IR Function)

Schedule Reset

Select YES to reset the entire schedule.

Exit

Exit SCHEDULE and return to MAIN PAGE 3.

Exit OSD

To exit the OSD setup menu, select EXIT on the bottom of MAIN PAGE 3.

APPENDIX A: SPECIFICATIONS

CAMERA SPECIFICATIONS

Model	CM-512
Image Sensor	1/4” Sony CCD
IP Rating	IP66
Type / Format	NTSC
Wide Dynamic Range	Yes
Minimum Illumination @ 50IRE	0.4 Lux (B/W) / 1 Lux (Color) (DSS OFF)
Minimum Illumination @ 30IRE	0.2 Lux (B/W) / 0.6 Lux (Color) (DSS OFF)
Day / Night	Yes (True Day / Night)
Horizontal TVL	650 TVL
S/N Ratio	>50dB (AGC Off)
Focal Length	F1.6 ~ F4.5, 3.4 mm ~ 122.4 mm
Iris Control	Auto / Manual
Synchronization	Internal / Line Lock
Video Output	1.0 Vp-p / 75Ω, BNC
White Balance	Auto / Manual
Auto White Balance Range	20000 K ~ 10000 K
Backlight Compensation	On / Off
Auto Gain Control	Auto / Manual
Operating Temperature	-40°F ~ 122°F (-40°C ~ 50°C)
Heater	Yes
Power Consumption	50W Max
Rated Amperage	2.08A

Model	CM-512
Input Voltage	24vAC ± 10%
Weight	5.11 lbs (2.3 kg)
Dimensions	Ø7.5" (190.5mm) x H: 11.1" (282mm)
Housing / Dome Cover	White / Clear

PTZ SPECIFICATIONS

Model	CM-512 Outdoor Speed Dome
Built-in Protocol	Optix III, Pelco D & P, VCL
Optical Zoom	36X
Pan/Tilt Range	360° Endless / -10° ~ 190°
Presets	256
Preset Accuracy	± 0.225°
Preset Speed	5° ~ 400°/sec.
Pattern	8
Tour (Group)	8
Auto Scan	4
Privacy Mask	16
Zone Title	16
Home Function	Preset, Pattern, Tour, Autoscan
Auto Flip	Digital / Mechanical / Off
Digital Slow Shutter	On / Off
Focus Mode	Auto / Manual
Alarm Input	4
Alarm Output	2

APPENDIX B: OSD MENU NOTES

Item	Layer 1	Layer 2	Layer 3	Notes
LANGUAGE	<ENGLISH>, <JAPANESE>, <PORTUGUESE>, <SPANISH>, <FRENCH>, <GERMAN>, <ITALIAN>, <POLISH>, <RUSSIAN>, <TRADITIONAL CHINESE>,<SIMPLIFIED CHINESE>, <TURKISH>			
DEFAULT CAMERA	<ON>, <OFF>			
BACKLIGHT	<ON>			
	<OFF>			
FOCUS	AUTO	AF MODE <NORMAL>, <Z. TRIG.>, <PTZ TRIG.>		
		EXIT + SAVE		
	MANUAL			

Item	Layer 1	Layer 2	Layer 3	Notes
AE MODE	EXPOSURE COMP.	<OFF>, EXPOSURE VALUE: <-10.5dB> ~ <10.5dB>		
		EXIT + SAVE: YES		
	AE MODE	AUTO	BRIGHT VALUE / SHUTTER SPEED / IRIS VALUE / GAIN VALUE: AUTO	
			EXIT + SAVE: YES	
		SHUTTER	SHUTTER SPEED: <1/60> ~ <1/10000> SEC	
			EXIT + SAVE: YES	
		IRIS	IRIS VALUE<F1.6>	
			EXIT + SAVE: YES	
		MANUAL	BRIGHT VALUE: AUTO	
			SHUTTER SPEED: <1/60> ~ <1/10000> SEC	
			GAIN VALUE <-3> dB ~ <28>dB	
			EXIT + SAVE: YES	
	EXIT+SAVE	YES		

Item	Layer 1	Layer 2	Layer 3	Notes
WBC MODE	AUTO (Auto White Balance)			
	INDOOR			
	OUTDOOR			
	ATW (Auto-tracing WBC)			
	MANUAL	R GAIN <000> ~ <127>		
		B GAIN <000> ~ <127>		
		EXIT + SAVE: YES		
IMAGE CTRL	ZOOM SPEED	<8>		
	MAX DIGITAL ZOOM	<OFF>, <2x> ~ <12x>		
	SLOW SHUTTER	<ON>, <OFF>		
	D.N.R.	2 D.N.R. <ON>, <OFF>		
		3 D.N.R. <ON>, <OFF>		
		EXIT + SAVE: YES		
	IMAGE INVERSE	<ON>, <OFF>		
	FREEZE	<ON>, <OFF>		
	APERTURE	<01> ~ <16>		
	STABILIZER	<ON> , <OFF>		
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Notes
TELE-METRY CTRL	FLIP	<OFF>, <M.E.>, <IMAGE>		
		EXIT + SET: YES		
	ANGLE ADJUSTER	MIN ANGLE <-10 ~ +10 DEG>		
		MAX ANGLE <080 ~ 100 DEG>		
		EXIT + SET: YES		
	SPEED BY ZOOM	<ON>, <OFF>		
	AUTO CALIBRATE	<ON>, <OFF>		
	PASSWORD	<ON>,<OFF>		
	OSD AUTO CLOSE	<OFF>, <5> ~ <30> SEC		
	SYSTEM RESET	SYSTEM RESET: <YES>		
		DEFAULT SYSTEM: <YES>		
		EXIT <YES>		
	EXIT	YES		
ID DISPLAY	<ON>, <OFF>			
TITLE DISPLAY	<ON>, <OFF>			
TITLE SETTING	<0> ~ <9>, <A> ~ <Z>, <:>, </>, <.>, <,>, <(>, <)>, <+>, <?>, <->			
PRESET	PRESET SET	<001>~<256>		
	PRESET RUN	<001>~<256>		
	EXIT	YES		
TOUR	SEQUENCE LINE	<1> ~ <8>		
	SEQUENCE POINT	<01> ~ <64>		
	PRESET POS.	<001> ~ <255>, <END>		
	SPEED	<01> ~ <15>		
	DWELL TIME	<000> ~ <127> SEC.		
	RUN SEQUENCE	ENTER		
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Notes
AUTOSCAN	AUTOSCAN LINE	<1> ~ <4>		
	START POINT	<PT MOVE>, <TO SAVE>		
	END POINT	<PT MOVE>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		
	SPEED	<01> ~ <04>		
	RUN AUTOSCAN	ENTER		
	EXIT	YES		
PATTERN	PATTERN LINE	<1> ~ <8>		
	RECORD START	ENTER		
	RECORD END	ENTER		
	RUN PATTERN	ENTER		
	EXIT	YES		
HOME SETTING	HOME FUNCTION	<ON>, <OFF>		
	SELECT MODE	<PRESET>, <TOUR>, <AUTOSCAN>, <PATTERN>		
	PRESET POINT	<001> ~ <256>		
	RETURN TIME	<1> ~ <128> MIN.		
	GO	ENTER		
	EXIT	YES		
IR FUNCTION	<AUTO>	THRESHOLD <MID>, <HI>, <LOW>		
		EXIT + SAVE: YES		
	<MANUAL>	IR MANUAL: <ON, <OFF>		
		EXIT + SAVE: YES		

Item	Layer 1	Layer 2	Layer 3	Notes
ALARM SETTING	ALARM PIN	<1> ~ <8>		
	ALARM SWITCH	<ON>, <OFF>		
	ALARM TYPE	<NO> (Normal Open), <NC> (Normal Close)		
	ALARM ACTION	<PRESET>, <TOUR>, <AUTOSCAN>, <PATTERN>		
	PRESET POINT	<001> ~ <256>		
	TOUR LINE	<1> ~ <8>		
	AUTOSCAN LINE	<1> ~ <4>		
	PATTERN LINE	<1> ~ <8>		
	DWELL TIME	<001> ~ <127> Sec., <ALWAYS>		
	ALARM OUTPUT	<1>, <2>, <1 + 2>, <OFF>		
	EXIT	YES		
ALARM DETECT	NONE			
WDR FUNCTION	<ON>, <OFF>			

Item	Layer 1	Layer 2	Layer 3	Notes
PRIVACY MASK	PRIVACY SWITCH	<ON>, <OFF>		
	TRANSPARENCY	<ON>, <OFF>		
	COLOR	<BLACK>, <WHITE> ,<RED> , <GREEN> , <BLUE>, <CYAN> , <YELLOW>, <MAGENTA>		
	SET MASK	<01> ~ <16>	H CENTER: L/R	
			V CENTER: D/U	
			H SIZE <000> ~ <080>	
			V SIZE <000> ~ <060>	
			EXIT + SAVE	
	CLEAR MASK	<01> ~ <20>		
	EXIT	YES		

Item	Layer 1	Layer 2	Layer 3	Notes
TIME SETTING	TIME DISPLAY	<ON>, <OFF>		
	SET YEAR	<00> ~ <99>		
	SET MONTH	<01> ~ <12>		
	SET DAY	<00> ~ <31>		
	SET HOUR	<00> ~ <23>		
	SET MINUTE	<00> ~ <59>		
	EXIT+SAVE			
SCHEDULE	SWITCH	<ON>, <OFF>		
	POINT	<01> ~ <32>		
	HOUR	<00> ~ <23>		
	MINUTE	<00> ~ <59>		
	MODE	NONE	NO FUNCTION	
		PRESET	PRESET POINT <001> ~ <256>	
		TOUR	TOUR LINE <1> ~ <8>	
		AUTOSCAN	AUTOSCAN LINE <1> ~ <4>	
		PATTERN	PATTERN LINE <1> ~ <8>	
		IR FUNCTION	IR FUNCTION <AUTO>, <ON>, <OFF>	
	SCHEDULE RESET	YES		
	EXIT	YES		
EXIT OSD	YES			

APPENDIX C: CAMERA ID SETUP

Use this table to set the camera ID.

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
12	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
18	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
39	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
41	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
42	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
43	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
44	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
45	ON	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
46	OFF	ON	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
47	ON	ON	ON	ON	OFF	ON	OFF	OFF	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
48	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
49	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
51	ON	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
52	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
53	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
54	OFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
55	ON	ON	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
56	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
57	ON	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
58	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
59	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
60	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
61	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
62	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF
63	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF
64	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
66	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
67	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
68	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
69	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
70	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
71	ON	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
72	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
74	OFF	ON	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
75	ON	ON	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
76	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
77	ON	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
78	OFF	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
79	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
80	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
81	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
82	OFF	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
83	ON	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
84	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
86	OFF	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
87	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
88	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
89	ON	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
90	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
91	ON	ON	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
92	OFF	OFF	ON	ON	ON	OFF	ON	OFF	OFF	OFF
93	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF	OFF
94	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF	OFF
95	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF	OFF
96	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
97	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
98	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
100	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
101	ON	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
102	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
103	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
104	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
105	ON	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
106	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
107	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
108	OFF	OFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF
109	ON	OFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF
110	OFF	ON	ON	ON	OFF	ON	ON	OFF	OFF	OFF
111	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF	OFF
112	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
113	ON	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
114	OFF	ON	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
115	ON	ON	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
116	OFF	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF
117	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF
118	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF
119	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF
120	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF
121	ON	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF
122	OFF	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF
123	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF
124	OFF	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF
125	ON	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
126	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF
127	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF
128	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
129	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
130	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
131	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
132	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
133	ON	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
134	OFF	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
135	ON	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
136	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
137	ON	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
138	OFF	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
139	ON	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
140	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
141	ON	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
142	OFF	ON	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
143	ON	ON	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
144	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
145	ON	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
146	OFF	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
147	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
148	OFF	OFF	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
149	ON	OFF	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
150	OFF	ON	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
151	ON	ON	ON	OFF	ON	OFF	OFF	ON	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
152	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
153	ON	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
154	OFF	ON	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
155	ON	ON	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
156	OFF	OFF	ON	ON	ON	OFF	OFF	ON	OFF	OFF
157	ON	OFF	ON	ON	ON	OFF	OFF	ON	OFF	OFF
158	OFF	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF
159	ON	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF
160	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
161	ON	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
162	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
163	ON	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
164	OFF	OFF	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
165	ON	OFF	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
166	OFF	ON	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
167	ON	ON	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
168	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
169	ON	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
170	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
171	ON	ON	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
172	OFF	OFF	ON	ON	OFF	ON	OFF	ON	OFF	OFF
173	ON	OFF	ON	ON	OFF	ON	OFF	ON	OFF	OFF
174	OFF	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF
175	ON	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF
176	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
177	ON	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
178	OFF	ON	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
179	ON	ON	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
180	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF
181	ON	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF
182	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	OFF
183	ON	ON	ON	OFF	ON	ON	OFF	ON	OFF	OFF
184	OFF	OFF	OFF	ON	ON	ON	OFF	ON	OFF	OFF
185	ON	OFF	OFF	ON	ON	ON	OFF	ON	OFF	OFF
186	OFF	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF
187	ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF
188	OFF	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF
189	ON	OFF	ON	ON	ON	ON	OFF	ON	OFF	OFF
190	OFF	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF
191	ON	ON	ON	ON	ON	ON	OFF	ON	OFF	OFF
192	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
193	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
194	OFF	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
195	ON	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
196	OFF	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
197	ON	OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
198	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
199	ON	ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
200	OFF	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
201	ON	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
202	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
203	ON	ON	OFF	ON	OFF	OFF	ON	ON	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
204	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
205	ON	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
206	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF
207	ON	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF
208	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
209	ON	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
210	OFF	ON	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
211	ON	ON	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
212	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF
213	ON	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF
214	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF
215	ON	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF
216	OFF	OFF	OFF	ON	ON	OFF	ON	ON	OFF	OFF
217	ON	OFF	OFF	ON	ON	OFF	ON	ON	OFF	OFF
218	OFF	ON	OFF	ON	ON	OFF	ON	ON	OFF	OFF
219	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	OFF
220	OFF	OFF	ON	ON	ON	OFF	ON	ON	OFF	OFF
221	ON	OFF	ON	ON	ON	OFF	ON	ON	OFF	OFF
222	OFF	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF
223	ON	ON	ON	ON	ON	OFF	ON	ON	OFF	OFF
224	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
225	ON	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
226	OFF	ON	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
227	ON	ON	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
228	OFF	OFF	ON	OFF	OFF	ON	ON	ON	OFF	OFF
229	ON	OFF	ON	OFF	OFF	ON	ON	ON	OFF	OFF

ID Number	Switch Setting									
	1	2	3	4	5	6	7	8	9	10
230	OFF	ON	ON	OFF	OFF	ON	ON	ON	OFF	OFF
231	ON	ON	ON	OFF	OFF	ON	ON	ON	OFF	OFF
232	OFF	OFF	OFF	ON	OFF	ON	ON	ON	OFF	OFF
233	ON	OFF	OFF	ON	OFF	ON	ON	ON	OFF	OFF
234	OFF	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
235	ON	ON	OFF	ON	OFF	ON	ON	ON	OFF	OFF
236	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF
237	ON	OFF	ON	ON	OFF	ON	ON	ON	OFF	OFF
238	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF
239	ON	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF
240	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF
241	ON	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF
242	OFF	ON	OFF	OFF	ON	ON	ON	ON	OFF	OFF
243	ON	ON	OFF	OFF	ON	ON	ON	ON	OFF	OFF
244	OFF	OFF	ON	OFF	ON	ON	ON	ON	OFF	OFF
245	ON	OFF	ON	OFF	ON	ON	ON	ON	OFF	OFF
246	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF
247	ON	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF
248	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF	OFF
249	ON	OFF	OFF	ON	ON	ON	ON	ON	OFF	OFF
250	OFF	ON	OFF	ON	ON	ON	ON	ON	OFF	OFF
251	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	OFF
252	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF
253	ON	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF
254	OFF	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
255	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF

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